

Patent Claims

1. A plug-in electronic module having:
 - a housing,
 - an electronic component arranged in the housing,
 - at least one external electrical contact connected to the electronic component,
 - where the electronic module can be plugged into a holding structure such that the external electrical contacts on the module come into contact with associated electrical contacts on a coupling partner during the plug-in operation,
 - a mechanical protective apparatus which protects the electrical contacts from mechanical contact when the module is not plugged in and which exposes the electrical contacts when the module has been plugged into the holding structure, so that they can come into contact with associated electrical contacts on the coupling partner.
2. The module as claimed in claim 1, where the protective apparatus has a moving protective element which is moved from a first position protecting the electrical contacts into a second position exposing the electrical contacts when the module is plugged into the holding structure.
- 25 3. The module as claimed in claim 2, where the moving protective element is an element which can be displaced relative to the housing.
4. The module as claimed in claim 2, where at least one spring element is provided which holds the moving protective element in the first position in the unplugged state and allows the protective element to move into the second position counter to a spring force during the plug-in operation.

5. The module as claimed in claim 4, where the spring element
is of integral design with the housing of the electronic
module.

5 6. The module as claimed in claim 4, where the spring element
is in the form of a separate part which is mounted on or
inserted into the housing of the electronic module.

10 7. The module as claimed in claim 3, where the displaceable
element is a flat protective tongue which can be displaced
longitudinally relative to the housing of the electronic
module.

15 8. The module as claimed in claims 4 and 7, where at least
part of the protective tongue has a circulating concave
profile for mechanically guiding the spring elements on the
protective tongue.

20 9. The module as claimed in claim 2, where the moving
protective element has a stop element which comes into
mechanical contact with the coupling partner during the plug-
in operation, with the moving protective element being moved
into the second position, which exposes the electrical
contacts.

25

10. The module as claimed in claim 9, where the stop element
is formed by an angled-away part of the moving protective
element which is ahead in the plug-in direction.

30 11. The module as claimed in claim 2, where the moving
protective element is an element which can move into itself
and whose one end is connected firmly to the housing.

12. The module as claimed in claim 11, where the moving protective element is a foldable element which folds together during the plug-in operation to expose the electrical contacts.

5

13. The module as claimed in claim 12, where the foldable element has a plurality of bars which run transversely with respect to the longitudinal direction of the module and are connected to one another such that they can tilt along their 10 longitudinal side.

14. The module as claimed in claim 11, where the moving part is a roll-up part which rolls up during the plug-in operation to expose the electrical contacts.

15

15. The module as claimed in claim 2, where the moving protective element is made of electrically conductive material.

20 16. The module as claimed in claim 2, where the moving protective element is made of an insulating material.

25 17. The module as claimed in claim 2, where the moving protective element is made of a material which absorbs electromagnetic waves.

18. The module as claimed in claim 2, where the moving protective element is spaced apart from the electrical contacts in the first position.

30

19. The module as claimed in claim 1, where the electronic module is an optoelectronic transmission apparatus, an optoelectronic reception apparatus or an optoelectronic transceiver.

20. A method for connecting an electronic module, which has an electronic component and at least one external electrical contact connected to the electronic component, to a holding structure which is used for holding the electronic module and which has a coupling partner having electrical contacts, having the following steps:

- a mechanical protective apparatus having a moving protective element which protects the external electrical contacts from mechanical contact when the module has not been inserted into the holding structure is provided; and
- the moving protective element is moved relative to the external electrical contacts when the electric module is plugged into the holding structure, so that the external electrical contacts are exposed and come into contact with associated electrical contacts on the coupling partner.

21. The method as claimed in claim 20, where the moving protective element is moved relative to at least one spring element interacting with the protective element during the plug-in operation.